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CONSTRUCTION



HINTS

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In the May 4 issue of "Construction Hints", mention was made of tests being conducted by the Bureau of Standards on navy contract and other lubricating oils. We have been informed that these tests will be completed in about two months and the Regions will be notified of the results.

On another page is shown an illustration of an AUTOMATIC JACK for relieving weight on the rear springs of loaded fire trucks. This idea was originated by L. B. Smith and Chas. Sigl, working under District Ranger R. L. Weeman, Columbia Gorge District, Mt. Hood National Forest in Region 6. It is believed that enough dimensions are shown to enable anyone to build the jack.

The following article is taken from the September, 1935
issue of EXCAVATING ENGINEER

GIVE WIRE ROPE A FAIR START

This suggestion is specifically directed to operators who use wire rope on derricks, cranes, power shovels, or any other equipment on which the wire rope is reeved through blocks:

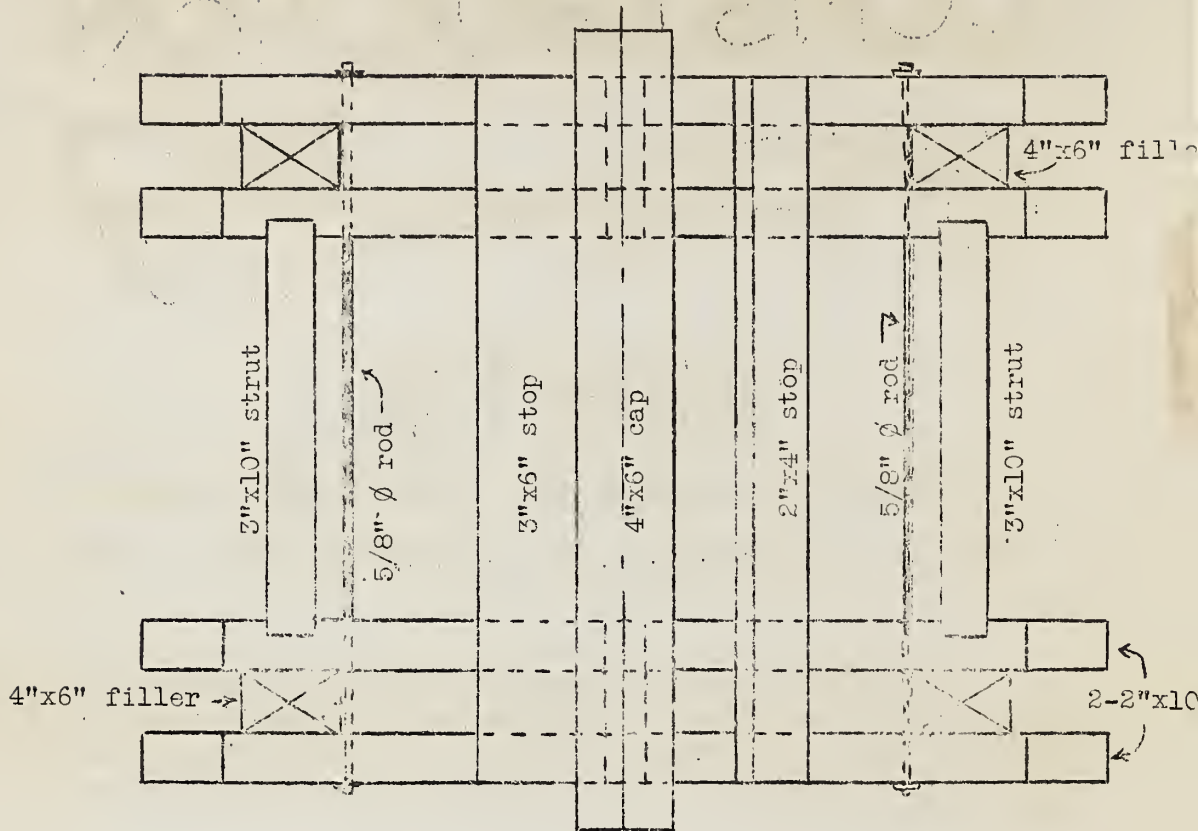
After your set-up has been made, run the line a few times with a comparatively light load to see how it works and spools, and to give it a chance to set itself. Then loosen up both end fastenings to allow whatever twist is still in the line to run out. Refasten - and you're all set to go.

- The Yellow Strand.

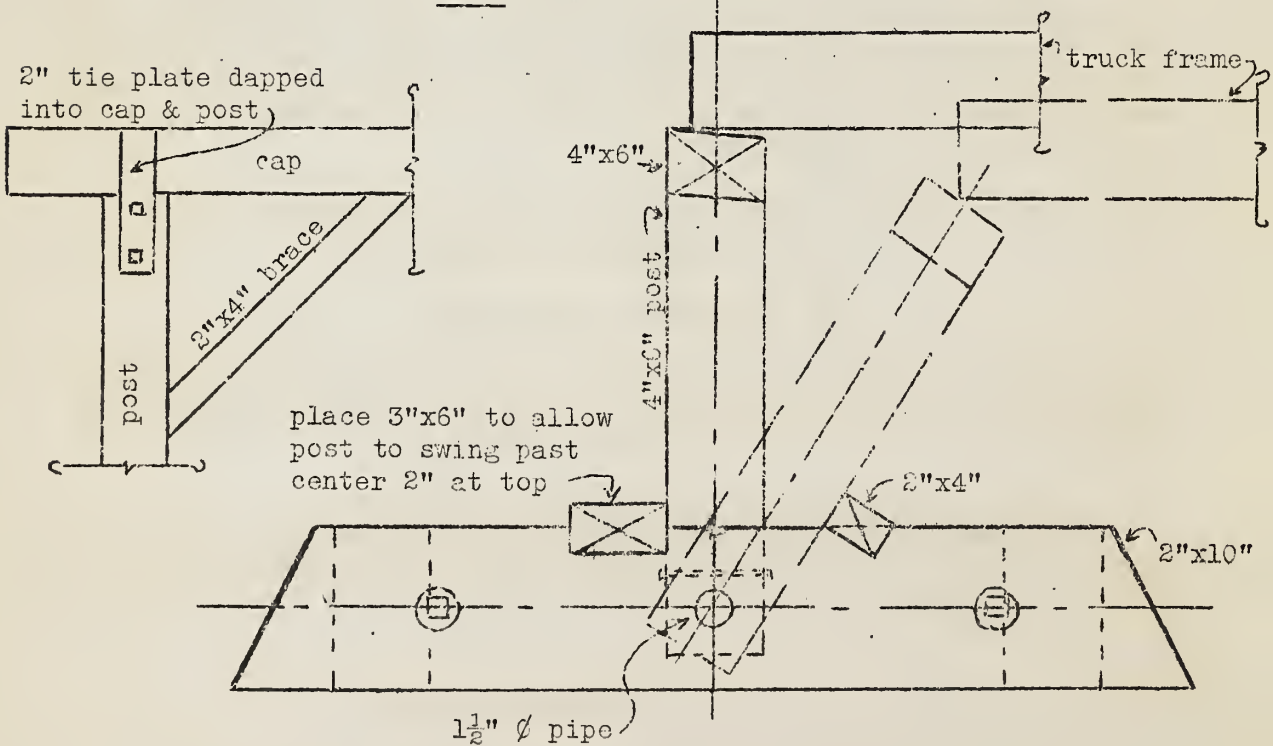
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AUTOMATIC JACK FOR RAISING TRUCKS



PLAN



ELEVATION

The following valuable construction hints were prepared by the men in Region 5:

Tempering Steel. (J. S. Cotton)

Drill steel breakage due to quenching stresses may be greatly reduced by dropping the steel into a horizontal water box fitted with a wire mesh tray to insure the cooling medium reaching all the steel surface at once. This eliminates any great difference in size of the crystalline structures, due to sudden thermal stresses set up when only a portion of the steel is quenched.

Blasting Boulders. (B. S. Ro Bards)

A saving in explosive and better control is obtained when blasting boulders if only a small amount of explosive is put in a hole and the hole packed with a dry mix concrete and allowed to set about one-half day before firing. This method gives nearly 100% efficiency as the gases cannot escape.

G. M. C. Truck Brakes. (J. S. Cotton)

Good brakes may be had on $1\frac{1}{2}$ ton G. M. C. trucks by equipping these trucks with a Bendix booster cylinder. As these boosters are severe when the truck is unloaded or on slippery roads the manual application control valve should be installed.

Engine Timing. (J. S. Cotton)

Any engine will run on the following timing: This is a first approximation and may need some slight changing. Set intake valve to begin opening at top dead center. If intake valve is not positively operated, set exhaust to open 45% before bottom dead center. Set breaker points of ignition unit to operate top dead center. (Spark retarded and both valves closed.) This dead center is the top dead center one revolution from the top dead center used in intake valve setting. If timing is correct, the exhaust, with the muffler removed, should have a sharp sound and little flame should show and the engine should not overheat.

If engine is magneto equipped with impulse starter, turn magneto in running direction until impulse snaps for proper cylinder (as shown by distributor brush) then turn magneto armature back until points begin to open and then lock coupling.

Hoist. (J. S. Cotton)

A serviceable hoist may be easily built by connecting one or more truck transmissions in tandem behind a truck or auto engine and fitting a spool to the final transmission.

Iron Cement. (J. S. Cotton)

A mixture of sal ammoniac and iron filings makes a fine filler for cracks in water jackets or other parts not subject to much strain.

Polarity Indicator. (J. S. Cotton)

If doubt exists as to polarity of direct current such as batteries, generating plants, etc., place the two leads in salt water. The wire on which bubbles form is the negative pole.

Concrete Vibrator. (J. S. Cotton)

A jackhammer fitted with a piece of blunt steel makes an excellent vibrator for concrete forms. Care should be taken not to over-vibrate the concrete; a small quiver is all that is required.

Bonding Old and New Concrete. (Repairs, patching and additions)

Roughen up old concrete surface, removing all of original face. Keep constantly wet for 3 days. Scrub old concrete with wire brush and rich cement grout.

Patch up level with a lean mix. If work is on a vertical surface, patch up in 3/8" layers, waiting about 3 hours between layers and roughen up surface between layers. Keep wet for at least one week.

Files.

Worn files may be sharpened by pickling in battery electrolyte.

Jackhammers.

Jackhammers to be stored should have the lubricant washed out with gasoline, as pitting of the parts may result if the lubricant is not perfectly neutral.

Testing Steel For Flaws or Cracks.

Clean paint and grease from part and soak part in dirty kerosene overnight. Dry carefully and rub part all over with chalk. Hit part with heavy blows in several places. If crack exists chalk will be discolored, due to vibration driving dirty kerosene out of crack into chalk. This is useful in checking crankshafts, drive shafts, final drives, gears and steering knuckles.

Diesel Connecting Rod Bolt Cages. (J. S. Cotton)

Before a diesel engine is put into use, a set of numbered sheet metal cages should be made to fit over each connecting rod bolt to a light drag fit. The bolts should be checked periodically for stretch and any stretched bolts should be replaced in order to prevent a wrecked engine.